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radial walls are rarely thickened so as to appear in any way; the divisural line shows the place of their attachment to the teeth and segments.

NEW AMERICAN MOSSES.

HYPNUM (CALLIERGON) CYCLOPHYLLOTUM Holzinger, Minnesota Botanical Studies, Nov., 1896, *pl.* 39.

“Plants dark green above, yellow below; 8-10cm. high; erect by crowding. Stem leaves concave, ascending when moist, as broad as long, or *broadier*, obtuse, entire margined, costate to apex; costa broad; leaf angles decurrent, strongly excavate, their cells *abruptly* enlarged, hyaline, $0.08-0.1\text{mm.} \times 0.025-0.04\text{mm.}$, the thin walled cells not quite reaching the costa; upper leaf cells $0.04-0.06\text{mm.} \times 0.008-0.01\text{mm.}$; branch leaves, of the short axillary branches, also concave, much smaller, the costa faint, not extended into the obtuse apex. Dioicous; antheridial buds numerous along the middle part of the stem, shorter than the leaves, in their axils. Fruiting plants not found.

“This plant is near *Hypnum cordifolium*, but differs from this species in having its leaves more *closely* set on the stem, costate *to apex*, and *much wider* in proportion to length; also in having the larger cells of the auricles abruptly enlarged, and the leaf cells proper *smaller*.

“It differs from *Hypnum giganteum* in its unusually broad leaves, smaller size, dark green color, and fewer and shorter branches.”

Collected in Lamoille “Cave,” Minnesota; associated with *Brachythecium rivulare*.

GRIMMIA (EUGRIMMIA) BRITTONIÆ R. S. Williams, Bull. Torr. Bot. Club, 27: 316. *pl.* 19. 1900.

“Growing in dense hemispherical tufts up to 3.5cm. high. Stems slender, usually bearing long branches. Outer perichaetial and upper stem leaves with blade 1mm. in length, oblong, somewhat lanceolate pointed, concave, flat on the borders with a nearly smooth hair point up to three times the length of blade; lower leaves a little smaller with hair point scarcely equaling blade, more concave and somewhat recurved; inner perichaetial leaves minute, triangular, with hair point eight to ten times length of blade; upper cells irregular, roundish or quadratic, about 0.006mm. in diameter, gradually becoming elongated below, towards the base three or four times longer than broad near the costa and one and a half to two times longer than broad near margin; cells

but slightly sinuous walled when filled with chlorophyl, later on the walls become distinctly sinuous both above and below.

"Apparently dioicous; fruit unknown."

Growing on shaded perpendicular walls, partly calcareous, in rather dry places. Collected for several seasons in Bad Rock Cañon, Flathead river, Mont.

Dedicated to Mrs. E. G. Britton.

GRIMMIA (EUGRIMMIA) TENUICAILIS, R. S. Williams, l. c. *pl.* 20.

"In compact tufts up to 6 cm. high. Stems very slender, often threadlike, with few simple, mostly short branches; perichaetial and upper stem leaves rather broadly ovate-lanceolate, concave, revolute on the borders, blade $1\frac{1}{2}$ mm. long, with rough hair point about $\frac{2}{3}$ blade in length, the papillæ of point spreading, often recurved; moistened leaves erect-spreading; upper cells irregular, somewhat transversely or vertically elongated, mingled with rounded cells 0.004.006 mm. in diameter; cells toward base more or less elongated rectangular, those near margin from nearly quadratic to twice longer than broad, toward costa becoming 2.4 times longer than broad; cells apparently never sinuose walled; occasionally the leaf is hyaline nearly $\frac{1}{2}$ down from apex, the hyaline cells always elongated: evidently dioicous; sporophyte not seen."

"Type from near Neihart, Belt Mts., Mont., Sept. 21, also, obtained at Marsh Lake and Dawson on the Yukon River."

The above descriptions are slightly abbreviated from the original.—A. J. G.

RECENT LITERATURE RELATING TO NORTH AMERICAN MOSSES.

M. JULES CARDOT, the well-known French student of mosses, has recently rendered a great service to American bryology in examining the types of Hedwig and Schwægrichen, which are preserved in the Boissier Herbarium.* One of the greatest stumbling blocks to American students is the uncertainty as to what the types may be, for they are often in European herbaria accessible only to the man who can afford to cross the Atlantic. We hope Monsieur Cardot will not stop here, but will go on and look up other American types stored in foreign museums. The types of the late C. Müller will afford an interesting and profitable study. We present below some of the most important of M. Cardot's conclusions:

Barbula acuminata Hedw.=*B. fallax* Hedw.

B. lanceolata Hedw. is a form of *B. unguiculata* Hedw., as also is *B. stricta* Hedw.

* Etude sur la Flore Bryologique de L'Amerique Du Nord. From Bull. Herb. Boissier 7: 300-380, 1899.